

United States-Spain Fisheries Trade, 1980-85

Introduction

The U.S. fishing industry's hopes to enter the \$500 million Spanish seafood market have not materialized, even though Spain was forced to become a net importer of fishery products in 1977, due to the extension of 200-mile Exclusive Economic Zones (EEZ) by coastal countries. U.S. exports of edible seafoods to Spain have declined to only \$3.5 million in 1980 to only \$0.2 million in 1985 (Fig. 1) At the same time, Spain has increased its exports to the United States from \$20 million in 1980 to \$38 million in 1985. Important U.S. fishery products exported to Spain in 1985 included frozen squid, Pacific salmon, and salted cod. Spanish exports to the United States during 1985 included significant amounts of fresh or frozen tuna, swordfish, and shellfish.

Spain's 1 January 1986, accession to the European Community (EC) has begun to change Spain's highly structured system of import regulations. It is difficult to anticipate the immediate impact of Spanish entry into the EC on U.S.-Spain trade in fishery products, as tariffs and quantitative restrictions on certain commodities will not be fully modified for another 7-10 years. The United States and the EC are currently discussing EC trade policies under Article XXIV of the General Agreement on Tariffs and Trade (GATT). These GATT meetings will serve to clarify both the U.S. and EC positions on fish trade.

The Spanish Seafood Market

The Spanish market for seafood products is highly developed, and Spanish consumers are known for their high standards and good taste in choosing quality seafoods. Spaniards consume more than twice the seafood eaten by the average EC citizen, who consumes 15 kg per year. Spain's domestic market for ed-

ible fishery products, one of the largest in Europe, is estimated to be worth about \$500 million.

Spaniards consumed more than 1.2 million metric tons (t) of seafood products during 1985. About 25 percent of the total Spanish supply of fishery products was imported. Spanish consumers have traditionally enjoyed eating fish and shellfish; in 1985, Spain ranked eighth worldwide in seafood consumption with 35 kg per person. Of this amount, fresh fish and shellfish accounted for 70 percent; frozen, 25 percent; and canned/preserved, 5 percent.

Nearly half of the seafood consumed in Spain consists of pelagic species landed by the Spanish fleet and consumed fresh.

Favored species include sardine, anchovy, tuna, and mackerel. Groundfish species make up about 40 percent of seafood consumption. Hake is the favorite species, followed by cod, monkfish, and sole. Shellfish, such as squid and shrimp, are also sought by Spanish consumers. Although fresh fish is the traditional consumer preference, frozen fish is slowly gaining acceptance and the shift toward frozen products has accelerated in recent years. Nearly 20 percent of all seafood now sold in Spain in frozen. A significant amount of Spanish seafood imports are in frozen form.

The Spanish Fisheries Trade

The advent of the global extension of fishery jurisdictions to 200 miles in the late 1970's limited Spain's access to traditional distant-water fishing grounds. Lack of access of species favored by the Spanish consumer and the inability of Spanish fishermen to harvest enough fish within their own EEZ has forced Spain to become a net importer of fishery products (Table 1). Because Spain has been unable to remain self sufficient, the Spanish

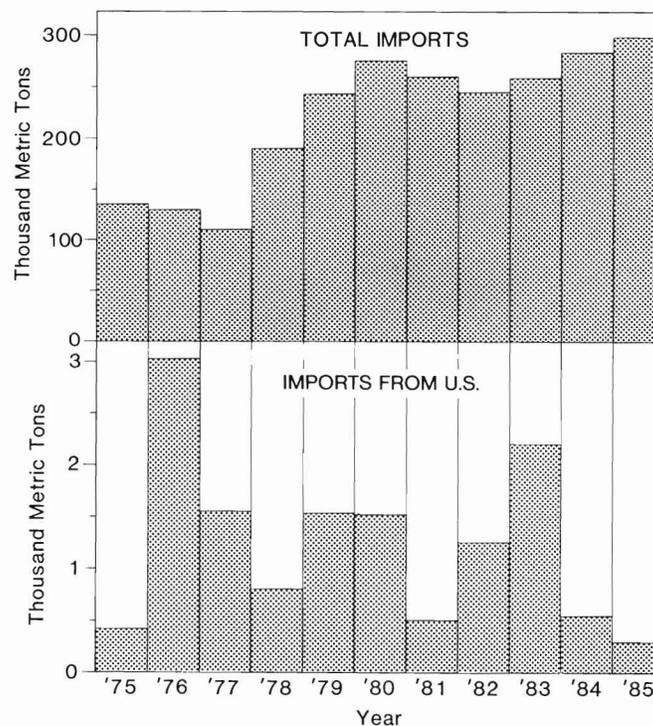


Figure 1.—Spain's total fishing imports vs. imports from the United States, by quantity, 1975-85.

Government has sought access for its large fleet in distant-water fishing grounds.

Spain's important "bilateral trade regime" was developed and adopted during 1977 in response to the changing regime of the sea. The objective of this policy was to protect the interests of Spain's powerful fishing fleet and fishermen's organizations. The intent of the policy was to link foreign access to Spain's profitable market with Spain's access to foreign EEZ's. This policy used both tariff and nontariff barriers (licensing, regulations, marketing standards, import quotas) to influence, or entice, other countries into issuing fishing permits to Spanish vessels.

The accession of Spain to the EC is changing Spanish fishery policy, as well as having an apparent impact on EC fisheries policy making. In revamping the then current Common Fisheries Policy (CFP) (which was valid until the end of 1986), an EC proposal to the Council of Ministers linked access to the EC market with EC vessel fishing rights in foreign EEZ's. This new approach, whether influenced directly by Spanish entry or not, was still being discussed at the Council level and was not yet official Community policy.

The EC's Common Fisheries Policy, which governs all aspects of the Member States' fisheries, has become the new "framework" for Spanish fishery policy. Although EC accession will eventually "relax" Spain's trade barriers towards the Community, non-EC countries will clearly continue to be at a disadvantage vis-a-vis trade with Spain. In abiding by the Treaty of Accession, Spain will have to redirect its trade flows to buy more, increasingly, from the other members of the Community. The percentage of Spanish trade conducted with the EC is already substantial due to a preferential trade agreement in effect since 1970. As of 1 March 1986, however, the Spanish were obligated to begin increasing the Community share of their fishery imports by 15 percent, annually, until 31 December 1992. Although the United States exports fewer edible fishery products to Spain than to any other country in the European Community (Table 2), accession is certain to hurt the potential for

Table 1.—Spain's fishery catch, imports, and balance of trade, by quantity.

| Year | Quantity (t) | | | Balance of trade |
|------|--------------------|---------|---------|------------------|
| | Catch ¹ | Imports | Exports | |
| 1975 | 1,500,000 | 170,000 | | |
| 1976 | 1,450,000 | 140,000 | | |
| 1977 | 1,400,000 | 130,000 | | |
| 1978 | 1,350,000 | 200,000 | | |
| 1979 | 1,200,000 | 250,000 | | |
| 1980 | 1,250,000 | 299,400 | 158,300 | -141,100 |
| 1981 | 1,250,000 | 270,700 | 257,700 | -13,000 |
| 1982 | 1,350,000 | 329,500 | 234,400 | -95,100 |
| 1983 | 1,250,000 | 268,800 | 203,800 | -65,000 |
| 1984 | 1,200,000 | 297,000 | 209,500 | -88,000 |
| 1985 | | 323,300 | 230,000 | -93,000 |

¹Data is rounded off; no data available for 1985.

increased U.S. fishery exports. U.S. products available for export to Spain will be subject to the generally higher EC Common Customs Tariff (CCT, or EC import tariffs applicable to non-EC products) once entering the EC and will have to compete with EC products entering Spain with no tariff. Therefore, U.S. products will be less economically viable than those products from EC Member States or countries with EC trade agreements, such as Norway and Iceland.

Imports

During the past 5 years, Spanish imports of edible fishery products increased an average of 7 percent, from 299,500 t imported in 1980 to 323,000 t in 1985. The peseta (P) value of these imports increased by 80 percent, going from P39 billion to P70 billion. The value of Spain's total imports of edible fishery products when measured in U.S. dollars (\$), however, decreased from \$539 million to \$412 million due to both the Spanish and U.S. inflation rates and the sustained strength of the dollar. (The average rate of exchange for the Spanish peseta (P) during 1980 was US\$1.00 = P71.70; during 1985 the average rate increased to US\$1.00 = P170.04.)

Spain's most important suppliers of fishery products include France, Denmark, Italy, Iceland, Argentina, Chile, and South Korea. These imports have traditionally included fresh or frozen whole hake and hake fillets, frozen tuna, dried cod, frozen shrimp, and frozen squid.

Import Tariff System

Before Spain was obligated to begin

Table 2.—U.S. exports of edible fishery products to member states of the European Community, by quantity, 1980-85.

| Country | U.S. exports (1,000 t) | | | | | |
|-----------------------|------------------------|------|------|------|------|------|
| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| U.K. | 20.0 | 21.7 | 10.5 | 15.1 | 14.7 | 12.5 |
| France | 13.6 | 14.6 | 14.0 | 11.0 | 9.0 | 8.7 |
| FRG | 9.2 | 6.7 | 3.8 | 5.4 | 3.1 | 2.7 |
| Netherlands | 5.6 | 4.2 | 3.8 | 3.3 | 2.6 | 2.7 |
| Belgium- | | | | | | |
| Luxembourg | 5.6 | 3.8 | 3.0 | 2.6 | 2.0 | 1.5 |
| Greece ¹ | 4.3 | 3.7 | 3.8 | 0.4 | 0.1 | 0.7 |
| Italy | 2.3 | 1.1 | 4.4 | 2.2 | 1.2 | 1.7 |
| Spain ² | 1.5 | 0.5 | 1.3 | 2.2 | 0.5 | 0.3 |
| Denmark | 1.2 | 0.8 | 1.0 | 1.3 | 1.6 | 2.1 |
| Ireland | 0.2 | 0.3 | 0.1 | 0.2 | 0.2 | 1.5 |
| Portugal ² | 0.1 | 2.0 | 1.9 | 4.1 | 3.0 | 2.2 |
| Total | 63.6 | 57.4 | 47.6 | 47.8 | 38.0 | 36.6 |

¹Greece became a Member State of the EC in January 1981.

²Spain and Portugal became Member States of the EC in January 1986.

gradual harmonization of its tariff regulations with the EC, the Government of Spain utilized various tariff instruments to restrict imports of fishery products. "Ordinary" tariffs, the Internal Compensatory Tax (ICGI), and the Variable Compensatory Levy (VCL) were applied to prevent the importation of products at less than the domestic price for comparable products.

The "ordinary" tariffs were applied at 4 different official rates, depending on the country of origin of the product in question. Because Spain had a preferential trade agreement with both the EC and the European Free Trade Association (EFTA), there was both a reduced EC and an EFTA rate on fishery imports from those countries. The "GATT rate" applied to imports from signatories of the GATT having trade agreements with Spain, and the "general rate" applied to imports from countries with which Spain had no trade agreement.

In addition to ordinary tariffs, imports were also subject to the ICGI, and the VCL. The ICGI has since been replaced by the EC's Value Added Tax (VAT), a revenue-producing internal sales tax. Imports of certain products were also potentially subject to the nondiscriminatory VCL. The VCL was a variable levy, reviewed, and frequently changed without prior notice by the Government to make sure that certain imported products were not entering the country at a price lower

Table 3.—Spanish fishery products for which quantitative restrictions on imports from non-EC countries may be maintained.

| Item | Item |
|----------------------------------|-------------------------------|
| Fish | Fish |
| Whole, headless, or in pieces | Fillet |
| Cod (fresh or chilled) | Cod (fresh or chilled) |
| Cod (dried) | Hake (frozen) |
| Anchovies (fresh or chilled) | Shellfish |
| Hake (fresh, chilled, or frozen) | Spinous spider crab (fresh) |
| Blue whiting | Venus clam (fresh or chilled) |
| Horse mackerel | |

than the current domestic price for those products. The list of products affected by the VCL were published in the weekly *Boletín Oficial del Estado* (the Spanish “federal register”). The following species appeared regularly on the VCL list: Cod, squid, tuna, sardines, anchovy, hake, and crustaceans. As is the case for most countries, tariffs were highest on those products which competed with domestic production and lowest on products, such as tuna, which were required by domestic processors.

Spain was obligated on 1 March 1986 to begin harmonization of its import duties and the EC CCT duties, in seven equal installments of 12.5 percent, on 1 January of each year. The CCT will apply in full from 1 January 1993. In addition, the Government of Spain is required to eliminate all countervailing charges on imports of fishery products. Spain will be allowed, however, to maintain quantitative restrictions up to 31 December 1992 on imports of certain fishery products (Table 3). EC reference prices will apply to each of those products once the quantitative restrictions have been abolished. With the accession of Spain, three new species (monkfish, megrim, and pomfret) will be added to those species already covered by the EC price support and market control system (reference and withdrawal prices).

Nontariff Import Controls

Under the bilateral trade regime, the most effective nontariff import control mechanism used was the import license. The Government of Spain reserved the right to grant, deny, or suspend import

Table 4.—U.S. exports of edible fishery products to Spain, by commodity, quantity, and value, 1980-85.

| Commodity | Quantity (t) | | | | | | Value (US \$1,000) | | | | | |
|--------------------|--------------|------------|--------------|--------------|------------|------------|--------------------|----------------|----------------|----------------|----------------|--------------|
| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| Fish | | | | | | | | | | | | |
| Salmon | | | | | | | | | | | | |
| Fresh or frozen | 70 | 62 | 82 | 105 | 146 | 109 | \$ 260 | \$ 246 | \$ 318 | \$ 369 | \$ 521 | \$380 |
| Canned | 2 | 3 | 2 | | 2 | | 10 | 15 | 7 | | 7 | |
| Other | | | | | | | | | | | | |
| Fresh or frozen | 706 | 326 | 140 | 65 | 80 | 18 | 1,575 | 604 | 280 | 79 | 167 | 18 |
| Dried | 54 | 33 | 404 | 84 | | | 162 | 118 | 645 | 120 | | |
| Roe | 4 | 26 | 11 | 2 | 1 | 5 | 49 | 302 | 163 | 44 | 28 | 35 |
| Subtotal | 836 | 450 | 639 | 256 | 229 | 132 | 2,056 | 1,285 | 1,413 | 612 | 723 | 433 |
| Shellfish | | | | | | | | | | | | |
| Squid | | | | | | | | | | | | |
| Frozen | 629 | 30 | 616 | 1,934 | 321 | 162 | 1,335 | 57 | 1,103 | 3,665 | 484 | 224 |
| Canned | 41 | | | | | | 10 | | | | | |
| Shrimp | | | | | | | | | | | | |
| Frozen | | 16 | | 12 | | | | 52 | | 33 | | |
| Canned | | | | | 1 | 1 | | | | | 3 | 6 |
| Other | 16 | 7 | | 1 | 4 | | 80 | 40 | | 3 | 30 | 1 |
| Subtotal | 686 | 53 | 616 | 1,947 | 326 | 163 | 1,425 | 149 | 1,103 | 3,701 | 517 | 231 |
| Grand total | 1,522 | 503 | 1,255 | 2,203 | 555 | 295 | \$3,481 | \$1,434 | \$2,516 | \$4,313 | \$1,240 | \$664 |

licenses as it deemed “appropriate.” Under this system, import license applications from countries without bilateral agreements with Spain were considered on a case-by-case basis. The Directorate General for Tariff Policy and Imports in the Ministry of Economy and Finance, was responsible for reviewing import license applications, taking into account the requirements of the domestic industry and the level of imports from countries under bilateral agreements. In effect, countries that wanted to export fishery products to Spain were prevented from doing so, unless they were already bound by a bilateral agreement, usually offering catch allocations in return for export opportunities.

Exports

Although Spain continues to increase its fishery imports, exports of edible Spanish fishery products have also steadily increased. Between 1980 and 1985, exports of edible fishery products increased by 45 percent, from 158,300 t to 230,700 t. The peseta value of these exports increased as well, from P24,000 in 1980 to P60,400 in 1985, an increase of 140 percent. The dollar value of these exports, however, increased by only 4 percent, from \$340 million in 1980 to \$355 million in 1985. The principal destinations for these Spanish products,

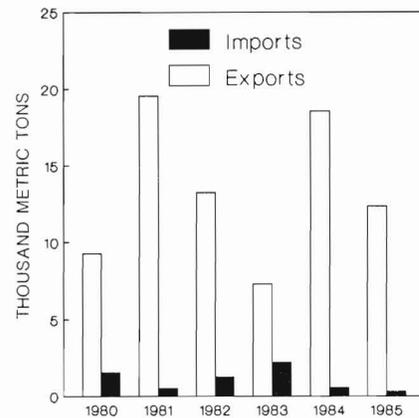


Figure 2.—Spanish imports of U.S. fishery products vs. exports of fishery products to the United States by quantity, 1980-85.

mostly fresh or frozen tuna, frozen squid, and canned sardines, have included Italy, Portugal, France, and the United States.

U.S.-Spain Fisheries Trade

The value of U.S.-Spain fisheries trade in 1985 totaled almost \$40 million, with Spanish exports to the United States (12,000 t valued at \$38 million) making up the majority, both by quantity and value, of that trade relationship. U.S. edible exports to Spain reached a low of 295 t valued at \$0.7 million during 1985 (Fig. 2 and Table 4). Although Spanish exports of fishery products to the United States have represented a steady 6 percent of Spain's worldwide exports of edible fish-

Table 5.—U.S. imports of edible fishery products from Spain, by commodity, quantity, and value, 1980-85.

| Commodity | Quantity (t) | | | | | | Value (US \$,000) | | | | | |
|---------------------|--------------|--------|--------|-------|--------|--------|-------------------|--------|--------|--------|--------|--------|
| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| Fish | | | | | | | | | | | | |
| Tuna | | | | | | | | | | | | |
| Fresh or frozen | 5,500 | 15,886 | 9,300 | 2,800 | 13,000 | 3,600 | 4,600 | 19,516 | 10,694 | 2,650 | 17,900 | 7,360 |
| Canned | 66 | 77 | 54 | 65 | 103 | 151 | 367 | 402 | 302 | 300 | 394 | 560 |
| Swordfish | | | | | | | | | | | | |
| Fresh | | | | | | 1,275 | | | | | | 6,520 |
| Frozen | | | | 15 | | 20 | | | | 36 | | 99 |
| Other | | | | | | | | | | | | |
| Fresh or frozen | 138 | 78 | 112 | 58 | 118 | 368 | 190 | 353 | 421 | 206 | 409 | 1,005 |
| Canned ¹ | 1,062 | 1,385 | 1,100 | 1,313 | 1,836 | 2,075 | 6,022 | 7,764 | 5,900 | 4,917 | 7,323 | 8,597 |
| Cured | 531 | 25 | 16 | 119 | 137 | 210 | 1,142 | 73 | 21 | 277 | 306 | 396 |
| Subtotal | 7,297 | 17,451 | 10,582 | 4,370 | 15,194 | 7,699 | 12,321 | 28,108 | 17,338 | 8,386 | 26,332 | 24,537 |
| Shellfish | | | | | | | | | | | | |
| Shrimp | | | | | | | | | | | | |
| Fresh or frozen | 248 | 119 | 92 | 177 | 40 | 176 | 2,277 | 1,828 | 1,478 | 2,990 | 271 | 1,964 |
| Canned | | | | 2 | 1 | 33 | | | | 2 | 1 | 292 |
| Other | | | | | | | | | | | | |
| Fresh or frozen | 1,730 | 1,953 | 2,560 | 2,801 | 3,316 | 4,445 | 5,478 | 4,858 | 5,368 | 6,940 | 7,858 | 11,374 |
| Canned | 7 | 13 | 6 | 9 | 11 | 8 | 44 | 72 | 42 | 41 | 48 | 38 |
| Subtotal | 1,985 | 2,085 | 2,658 | 2,929 | 3,367 | 4,662 | 7,799 | 6,758 | 6,888 | 9,973 | 8,178 | 13,668 |
| Grand total | 9,282 | 19,536 | 13,240 | 7,299 | 18,562 | 12,361 | 20,120 | 34,866 | 24,226 | 18,359 | 34,510 | 38,205 |

¹Primarily canned anchovies

ery products over the previous 5 years, U.S. exports of edible fishery products to Spain have declined since 1983, when 2,204 t of U.S. fishery products valued at \$4.5 million were purchased by Spanish importers. These products consisted of frozen squid (1,934 t valued at \$3.6 million) During 1983, the Government of Spain restricted imports of *Loligo patagonia* squid to compensate for the glut of inexpensive squid entering Spain from East European countries, especially Poland. U.S. exports of squid, however, were not affected by the import restriction and U.S. squid exporters selling in Spain enjoyed a banner year. Other U.S. products traditionally exported to Spain have included frozen salmon, other frozen fish (mackerel and herring), and cured fish (salted cod).

The inability of U.S. seafood exporters to successfully penetrate the Spanish seafood market is curious. The United States has allowed Spanish vessels to fish in United States waters since the 1960s. Spain was one of the first nations to request a Governing International Fishery Agreement (GIFA) with the United States to allow Spanish vessels continued fishing inside the United States 200-mile limit, which was extended in 1976. In addition, Spain was the first Eu-

ropean country to receive allocations of fish in the United States 200-mile zone in exchange for a promise to facilitate the importation of seafood from the United States; this "fish and chips" agreement was negotiated in 1980. Several United States seafood sales missions and a United States Seafood Exhibition at the ALIMENTARIA Food Show held in Barcelona were used to increase United States visibility on the Spanish market. However, despite the existence of the "fish and chips" agreement and allocations to Spanish vessels, Spanish imports of United States fishery products decreased (Fig. 3).

U.S. Seafood Imports from Spain

Since 1980, United States imports of edible fishery products from Spain have fluctuated, due primarily to the varying amounts of tuna purchased by United States importers from year to year (Table 5). A record amount of Spanish seafood, 19,500 t valued at \$35 million, was imported by the United States in 1981. Commodities making up the largest portion of that amount were fresh or frozen tuna and frozen "other" shellfish, reportedly squid. Imports during 1983, however, fell to 7,300 t, valued at

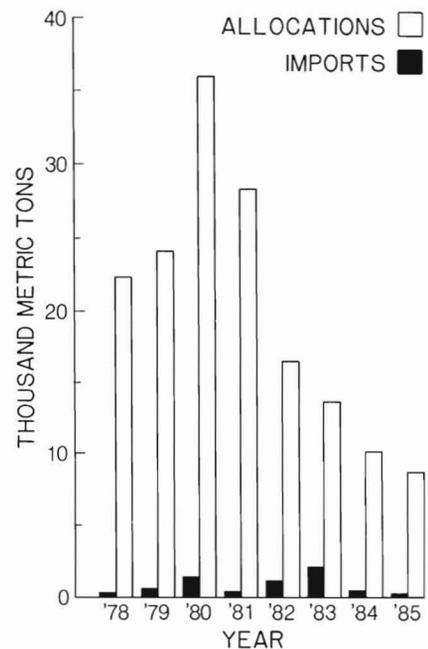


Figure 3.—Spanish imports from the United States, vs. allocations in U.S. waters, by quantity, 1978-85.

\$18 million, primarily because tuna imports fell sharply that year, while "other" shellfish imports remained relatively constant. U.S. import data for 1985 indi-

cate that the United States purchased 12,400 t of Spain's edible fishery products, valued at \$38 million. During 1985, imports of Spanish products represented about 1 percent of United States worldwide fishery imports.

Fish

Finfish generally make up about two-thirds of the U.S. imports from Spain. The most important single species is tuna, but in 1985, the United States began to purchase significant amounts of swordfish for the first time.

Tuna: U.S. imports of fresh or frozen tuna from Spain since 1980 have been erratic at best, with a high recorded during 1981 of 15,900 t, valued at \$19 million, and a low of 2,800 t, valued at \$2.7 million imported during 1983. The majority of those imports consisted of skipjack tuna. Small amounts of albacore, yellowfin tuna, and other tunas made up the majority of Spanish tuna exports to the United States in 1980, 1982, 1984, and 1985.

Swordfish: U.S. imports of Spanish-landed swordfish have increased dramatically in the past 2 years. The United States imported no swordfish from Spain until 1983, when 15 t, valued at \$0.3 million was reported. During 1985, however, the U.S. importers bought 1,300 t of swordfish worth \$7 million, or 9 times as much as they purchased in 1983. During the first 6 months of 1986, almost 1,000 t of swordfish worth \$6 million was purchased by U.S. seafood importers.

Others: The "other" fish category includes negligible amounts of mackerel and cod, in various forms. "Other" fish imports have been traditionally negligible, averaging only about 1000 t annually since 1980. Imports during 1985, however, reached a high of 368 t, valued at \$1 million. Canned fish imports from Spain since 1980 have consisted primarily of anchovies, followed by sardines, mackerel, and bonito, averaging about 1,500 t yearly, with imports during 1985 reaching a record 2,100 t valued at \$8 million. Anchovies, 1,300 t worth nearly \$7 million, represented more than 50 per-

cent of U.S. canned fish imports from Spain in 1985. Cured fish imports from Spain have usually included small amount of pickled or salted fish.

Shellfish

Shrimp: U.S. imports of Spanish-harvested shrimp have decreased since 1980 when U.S. importers purchased 248 t of fresh or frozen shrimp valued at \$2 million. Import data indicate the United States imported 175 t worth almost \$2 million in 1985. U.S. shrimp imports from Spain have averaged about 150 t yearly.

Others: U.S. imports of "other" shellfish from Spain have steadily increased during the past 5 years. "Other" imports during 1980 totaled 1,700 t worth \$5 million, while 1985 figures reveal that 4,400 t valued at \$11 million were purchased by importers. Although, U.S. import statistics do not break down "other" shellfish imports by species, the NMFS Foreign Fisheries Analysis Branch believes that the majority of this "other" category consists primarily of squid and other cephalopods. Small amounts of fresh, frozen, or canned clams, lobsters, and scallops are also included in this category.

U.S. Seafood Exports to Spain

The United States exports fewer edible fishery products to Spain than to any major country in Western Europe, even to countries with much smaller fishery markets (Table 2). Although total Spanish imports have increased over the past 5 years, the U.S. share of those imports has steadily declined. During 1985, U.S. edible fishery exports to Spain, 295 t, represented less than 0.1 percent of Spain's total seafood imports.

Export Decline

The sustained strength of the U.S. dollar in the past 5 years could explain the decline in United States exports to Spain. The increasing value of the Spanish peseta to the dollar in recent months may contribute to an increase in Spanish imports of U.S. fishery products. The October 1986 dollar value of the peseta was P132.

The decrease in U.S. fishery exports to Spain can also be attributed to increased competition from growing intra-Europe trade, and now, in particular, intra-EC trade. Spanish membership in the EC will certainly put the United States at a further disadvantage in marketing products in Spain. Although the strict import restrictions that have prevented U.S. exporters easy access to the Spanish market will slowly be dismantled, U.S. seafood products will remain at a disadvantage vis-a-vis products from other Member States and countries with which the EC has preferential trade agreements. The exact impact of EC accession on exports from the United States will vary with the products concerned and cannot be presently ascertained.

Despite this lack of U.S. presence in the Spanish seafood market, a recent survey conducted by the U.S. Embassy in Madrid among Spanish seafood importers indicates that 75 percent had an interest in importing U.S. fishery products. The importers mentioned squid, hake, cod, shrimp, monkfish, sole, and live lobster among the U.S. products that they felt had good market potential in Spain.

Species

Significant U.S. seafood exports to Spain have been limited to frozen squid and frozen salmon.

Squid: The most important U.S. fishery commodity exported to Spain between 1980 and 1985 was frozen squid. These exports have accounted for approximately 50 percent of both the quantity and value of total U.S. fishery exports to Spain during the past 5 years, although shipments have fluctuated sharply. Exports fell sharply in 1981, 1984, and 1985. Exports of squid to Spain, 160 t worth \$0.2 million, represented 55 percent by quantity and 34 percent by value, of all U.S. fishery exports to Spain in 1985. Although squid makes up more than half of all U.S. fishery exports to Spain, this amount is negligible when compared with Spain's total squid imports. During the first 6 months of 1986, U.S. squid exports to Spain reached 512 t valued at \$1 million.

Salmon: Exports of fresh or frozen Pacific salmon have increased steadily since 1980 and reached a high of 150 t valued at \$0.5 million in 1984. U.S. salmon exports declined to 109 t, valued at \$0.4 million, or a 30 percent decrease in salmon sales to Spanish importers dur-

ing 1985. Preliminary trade statistics for the first half of 1986 indicated that 50 t, valued at \$0.2 million had been exported to Spain.

Others: U.S. exports of "other" fish, primarily fresh or frozen cod and herring,

to Spain have been decreasing steadily since 1980, when nearly 800 t, valued at almost \$2 million was purchased. "Other" fish exports to Spain, by 1985, had dropped to 30 t worth some \$50,000. (Source: IFR-86/57.)

Marine Fisheries in Bahrain

Abdulrahman O. Musaiger

Introduction

Bahrain, one of the Arab Gulf countries, is situated about 24 km off the east coast of Saudi Arabia (Fig. 1). The state is composed of 33 islands with a total area of 691 square km, and has a population of 350,798 (1981 census), of whom about two-thirds are nationals; the rest are expatriates, mainly from Asia, the Middle East, and Europe, respectively (Anonymous, 1986).

Preceding the advent of the oil industry in the 1930's, fishing, boat building, pearl diving, and farming were the traditional Bahraini occupations. At that time, Bahrain was self-sufficient in the production of fish and vegetables, the principal dietary foods. With the development of the oil industry, agriculture and fisheries have declined, and the country became more dependent on imported foods. The national censuses of 1959, 1965, and 1971 showed that over these periods there was a decrease of 1.2 percent per annum in farmers and fishermen (Musaiger, 1982).

Shifting from traditional occupations to more highly paid jobs in the oil industry and other businesses, rapid urbanization, and population growth all contributed to the decline of Bahrain's fisheries. Oil revenue had a limiting effect on the development of agriculture in general and food production in particu-

lar. This is because the ratio of investment in agriculture to the total planned investment was very low (El-Sherbini, 1980). Indeed, the contribution of agriculture to gross domestic production in Bahrain does not exceed 1 percent (Musaiger, In press).

Since the end of the 1970's, serious

efforts have been focused on development of the fishery sector, resulting a noticeable improvement. Actually, the Bahrain islands are rich in fishery resources with many potentially productive sites on the inhabited coasts. However, the efforts to develop fisheries are facing many difficulties. This paper briefly

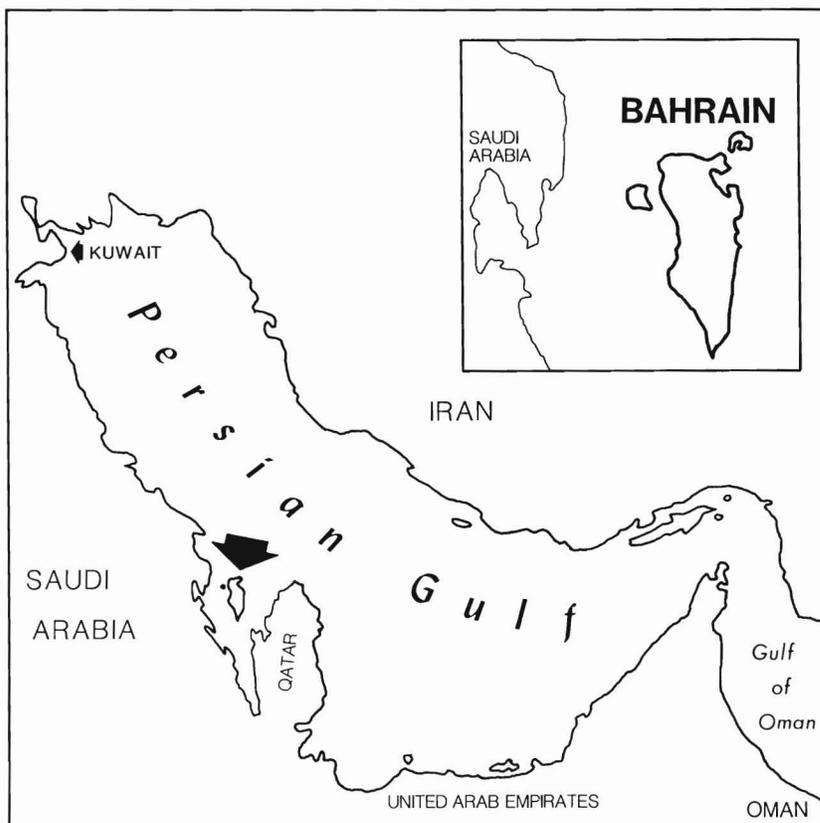


Figure 1.—Bahrain and vicinity.

Abdulrahman O. Musaiger is Head, Nutrition Unit, Public Health Directorate, Ministry of Health P.O. Box 42, Manama, Bahrain.

highlights Bahrain's fisheries and gives some possible measures to develop them.

Fish Landings

From 1979 to 1984, total fish landings increased 80 percent, from 3,901 t to 5,599 t. The two main sectors, artisanal and the industrial fisheries, contributed 76 and 24 percent, respectively. During that period, the industrial sector did not have significant growth (Table 1); its total catch was 1,305 t in 1979, which slowly rose to 1,357 t in 1984. The artisanal sector, using traditional fishing methods, was the principal supplier of fish in Bahrain, and thus more attention should be given its development.

Rabbitfish, shrimps, perches, groupers, and trevallies constituted the main landings in Bahrain (67 percent of total landings). Crustacean fisheries depend

Table 1.—The contributions of imports and the artisanal and industrial fisheries to the total fish consumed in Bahrain during 1979-84 in metric tons (t).

| Year | Artisanal | | Industrial | | Imports | | Total | |
|------|-----------|------|------------|------|---------|------|-------|-------|
| | t | % | t | % | t | % | t | % |
| 1979 | 2496 | 52.8 | 1305 | 27.6 | 927 | 19.6 | 4728 | 100.0 |
| 1980 | 2877 | 46.4 | 2238 | 36.1 | 1090 | 17.6 | 6205 | 100.0 |
| 1981 | 3599 | 47.7 | 2148 | 28.5 | 1803 | 23.9 | 7550 | 100.0 |
| 1982 | 3750 | 49.8 | 1844 | 24.5 | 1932 | 25.7 | 7526 | 100.0 |
| 1983 | 3303 | 41.9 | 1509 | 19.1 | 3081 | 39.0 | 7893 | 100.0 |
| 1984 | 4242 | 49.2 | 1357 | 15.7 | 3021 | 35.0 | 8620 | 100.0 |

Table 2.—Total landings in Bahrain by fish species for the period 1979-84 in metric tons (t).

| Fish group | 1979 | | 1984 | |
|--------------------|--------------|--------------|--------------|--------------|
| | t | % | t | % |
| Finfishes | | | | |
| Rabbitfishes | 451 | 11.9 | 1,105 | 19.7 |
| Perches | 688 | 18.1 | 656 | 11.7 |
| Groupers | 509 | 13.4 | 642 | 11.5 |
| Trevallies | 321 | 8.5 | 522 | 9.3 |
| Mackerels | 85 | 2.2 | 221 | 4.0 |
| Parrot fishes | 91 | 2.4 | 152 | 2.7 |
| Sea breams | 53 | 1.4 | 137 | 2.4 |
| Grunts | 80 | 2.1 | 104 | 1.9 |
| Silver biddies | 6 | 0.2 | 94 | 1.7 |
| Snappers | 247 | 6.5 | 88 | 1.6 |
| Others | 1,051 | 27.5 | 842 | 15.0 |
| Crustaceans | | | | |
| Shrimps | 182 | 4.8 | 808 | 14.4 |
| Crabs | 23 | 0.6 | 162 | 2.9 |
| Shovel lobsters | 2 | 0.1 | 16 | 0.3 |
| Molluscs | | | | |
| Sepia, clamars | 10 | 0.3 | 50 | 0.9 |
| Total | 3,801 | 100.0 | 5,599 | 100.0 |

largely on shrimps and constituted 80 percent of that category's total. Rabbitfish is the most popular finfish in Bahrain, and is the most heavily harvested. The contribution of rabbitfish to the total landings of finfish increased from 11.9 percent in 1979 to 19.7 percent in 1984. Groupers came in second, although their contribution to the total landings decreased from 13.4 to 11.5 percent during the years 1979 and 1984, respectively (Table 2). In general, the finfish catch increased 55.5 percent, and the crustacean catch by 230 percent while the mollusk catch rose 464.3 percent during 1979-84.

Landing Facilities

About 51 fishing sites are distributed around the islands of Bahrain. Unfortunately, many of these sites have no landing facilities (Table 3). The majority of these sites lack facilities for providing ice, fresh water, fuel, and mooring piers. Beach landing and marketing facilities were available in 86.3 percent of the fishing sites. The facilities available for arti-

Table 3.—Landing facilities in all fishing sites in Bahrain (1983).

| Facilities | Availability | | | |
|--------------|--------------|------|-----|------|
| | Yes | | No | |
| | No. | % | No. | % |
| Mooring pier | 5 | 9.8 | 46 | 90.2 |
| Beach | 44 | 86.3 | 7 | 13.7 |
| Fuel | 2 | 3.9 | 49 | 96.1 |
| Fresh water | 2 | 3.9 | 49 | 96.1 |
| Ice | 1 | 2.0 | 50 | 98.0 |
| Marketing | 44 | 86.3 | 7 | 13.7 |

Note: Fishing site is an area used by fishermen either as residence or for boat mooring or landing of his catch.

sanal fisheries were poor compared with those available for industrial fisheries (Anonymous, 1985a).

Labor Force

The number of fishermen has increased from 4,101 to 4,554 during 1978-83, an 11 percent increase, and mostly among Bahraini fishermen, whose numbers rose 13 percent. In contrast, the number of non-Bahraini fishermen decreased 13 percent. There was a 16 percent decline among full-time Bahraini fishermen, and more part-time and occasional fishermen have become involved (Table 4). This implies that some full-time fishermen have shifted to better paying jobs in other sectors, indicating an unhealthy situation, as these fishermen are the most skilled workers.

Handling and Processing

Bahraini fishermen operate wooden and steel vessels, and fish with traps, trawls, and headlines. The fish catch is iced for rapid cooling and held in insulated boxes. Cole et al. (1977) noted that in Bahrain, fish were bulked too deep (to at least 8 feet), which damaged the fish, especially those in the middle and at the bottom of the pile, thus affecting their shelf-life and quality. Cole et al. (1977) recommended the use of pound boards to separate the catch into layers of not more than 2 feet or storing the iced catch in plastic boxes to facilitate the fish handling, especially from the vessel to shore.

Much ice is lost through melting while fish is being transported in open vehicles. Fish transported in open vehicles also suffer spoilage and a reduction in shelf-

Table 4.—Types of fishermen in Bahrain according to their fishing involvement during the 1978 and 1983 censuses.

| Nationality | Year | Full-time ¹ | | Part-time ² | | Occasional ³ | | Total | |
|--------------|------|------------------------|------|------------------------|------|-------------------------|------|-------|-------|
| | | No. | % | No. | % | No. | % | No. | % |
| Bahraini | 1978 | 2,212 | 59.2 | 1,331 | 35.6 | 195 | 5.2 | 3,738 | 100.0 |
| | 1983 | 1,822 | 43.0 | 1,489 | 35.1 | 929 | 21.9 | 4,240 | 100.0 |
| Non-Bahraini | 1978 | 321 | 88.4 | 32 | 8.8 | 10 | 2.8 | 363 | 100.0 |
| | 1983 | 304 | 96.8 | 10 | 3.2 | | | 314 | 100.0 |
| Totals | 1978 | 2,533 | 61.8 | 1,363 | 33.2 | 205 | 5.0 | 4,101 | 100.0 |
| | 1983 | 2,126 | 46.7 | 1,499 | 33.0 | 929 | 20.4 | 4,554 | 100.0 |

¹One who spends >90 percent of his working hours in fishing.
²One who spends 30-90 percent of his working hours in fishing.
³One who spends <30 percent of his working hours in fishing.

life due to exposure to direct sunlight¹. Fish and other marine products are displayed with or without ice in palm-leaf baskets or mats on the ground or on concrete displays, depending upon market facilities. In some big cities, fish marketing facilities are available, including proper display shops, cold storage, and running water. Cleaning, filleting, and/or eviscerating of fish are also provided to the consumers. In many other markets, particularly in rural areas, such handling and processing facilities are lacking.

Most fish are sold fresh, and some are dried or salted. Shrimps are commonly dried, especially at peak seasons. However, as a result of changes in dietary habits, salted fish have become less popular in recent years. Compared with other processed fish, canned fish are highly consumed, and the most popular are tuna, mackerel, and sardine. All canned fish are imported, since there is no fish canning industry in Bahrain. Frozen fish and shrimps are available in supermarkets, and are widely consumed by non-Bahrainis.

Marketing and Distribution

Bahrain has various fish marketing methods. In large towns with a central fish market, storage and fresh-water facilities are available, and the possibility of fish spoilage is relatively low. In some villages which lack such facilities, marketing is done in an open area and the fish are not protected from heat or direct sunlight. Many purchasers, therefore, prefer to buy fish early in the morning or in the afternoon, soon after the catch is landed.

In other villages, especially those far from the sea, small vehicles drive from house to house to sell the fish, which are mixed with ice and covered by wet cloths. These fish may also be exposed to contamination and spoilage, since the vehicles have no proper storage facilities. Local consumers prefer small and medium-sized fish such as rabbitfish and trevallies. Large fish (i.e., groupers) are usually bought by hotels and restaurants.

Fish prices depend mainly on the har-

vesting seasons. For example the peak season for Spanish mackerel is during the winter months, November-February. Shrimps and rabbitfish landings peak in summer, while groupers are landed throughout the year.

Fish Imports and Exports

Fish imports soared during 1979-84, increasing from 927 t to 3,021 t, respectively. The greatest increase was in fresh, chilled, and frozen fish, which rose 446 percent during the period. Canned fish imports showed the next largest increase, with a rise of 108.7 percent during the same period (Anonymous, 1985b). In 1984, the contribution of imported fish to the total fish consumption in Bahrain was 35 percent, which indicates that Bahrain still lacks self-sufficiency in fish production. A well-designed program, therefore, is needed to encourage the two sectors of Bahrain's fishery, especially the artisanal sector which contributes nearly half of the nation's total catch (Table 1).

Bahrain has not exported any fish or fish products since 1983. Some fish were exported before then, and the amount fluctuated from year to year. In 1979, Bahrain reportedly exported 1,366 t of fish, mostly frozen shrimps¹. Domestic data (Anonymous, 1985a) indicated that the amount of fish exported in 1979 was 15.3 t or about 1.2 percent of local fish landed that same year. The amount then increased sharply to 179.2 t in 1980 and to 218.9 t in 1981, representing 8.0 and 10.2 percent of total fish landed, respectively. The 1982 exports dropped dramatically to only 21.2 t which represented 1.1 percent of the total fish landed. Most of fish exported were those which not accepted in local markets except by certain expatriates.

Fish Consumption

Annual per capita fish consumption in Bahrain rose from 14.3 kg in 1979 to 21.5 kg in 1984 (Anonymous, 1985b). The 1984 figures are less than that reported by the Central Statistics Organization (1985), as the annual per capita consumption of fish was 34.3 kg for 1983-84, and the consumption was higher among Bahraini (35.8 kg) than non-Bahraini (27.5 kg). This may be due

to the fact that fishing is a hobby for many people in Bahrain, especially among Bahraini, and therefore many families consumed more fish that were caught by their members.

Expenditures on fish has also decreased during the past 10 years. The household expenditure on fish during 1973-74 was 13.2 percent of the total food expenditure. This expenditure dropped to 10.2 percent during 1983-84, which was largely due to an increase in the prices of fish and changes in dietary habits as more meat and poultry were consumed, in lieu of fish.

Table 5 shows the annual per capita consumption of various types of fish in Bahrain according to nationality. The Bahraini preferred to consume rabbitfish, groupers, and perches more than non-Bahraini. Annual per capita consumption was 8.4, 7.7, and 5.6 kg, respectively, for the Bahraini, compared with 1.9, 4.9, and 2.1 kg for non-Bahraini.

Composition of Fish Consumed

Little data have been collected on the nutritional values of the fish commonly consumed in Bahrain and other Gulf states. In a Kuwaiti study, Kamel and Allam (1979) examined the nutritional values of some fishes consumed also by Bahrainis. Generally, these fish are rich in protein, which ranged from 19.0 to 21.1 g/100g of edible portion. Dried shrimp is very high in protein (76.4 percent), due to its low moisture content (8.1 percent). Some fish are rich in fat, such as groupers (35.7 percent) and mullets (12.1 percent). Iron is very high in

Table 5.—Per capita annual fish consumption in Bahrain (1983-84).

| Type of fish | Consumption (kg) | | |
|----------------------|------------------|--------------|-------|
| | Bahraini | Non-Bahraini | Total |
| Rabbitfishes | 8.4 | 1.9 | 7.2 |
| Groupers | 7.7 | 4.9 | 7.2 |
| Mackerels | 2.5 | 1.6 | 2.3 |
| Trevallies | 1.7 | 1.5 | 1.7 |
| Perches | 5.6 | 2.1 | 5.0 |
| Other fresh fish | 4.3 | 7.6 | 4.9 |
| Fresh shrimps | 4.5 | 4.7 | 4.6 |
| Frozen, salted fish | 0.3 | 2.1 | 0.6 |
| Frozen, dried shrimp | 0.6 | 0.6 | 0.6 |
| Other sea products | 0.2 | 0.5 | 0.2 |
| Total | 35.8 | 27.5 | 34.3 |

¹Match. 1982. Country export marketing profiles: Gulf states. Natl. Ocean. Atmospher. Admin., Wash., D.C., p. 1-11.

dried shrimp (62 mg/100g), as well as phosphorus (969 mg/100g). Thus, dried shrimps are very nutritious, but one limitation is their high sodium content.

Constraints on Fishery Development

Several factors influence the development of the Bahrain fishery:

- 1) Lack of fishing and harbor facilities, particularly ice plants, cold storage, and fuel and marketing facilities.
- 2) Insufficient investment capital directed to the fishing industry, with most available investment capital directed to poultry, milk, and other food industries.
- 3) Insufficient research directed to the development of the Bahrain fishery.
- 4) Inadequate fishery regulation and legislation (i.e., fishing methods, handling, processing, and marketing regulations). Although Bahrain is applying FAO/WHO Codes Alimentarius Standards, the need for local standards is emphasized.
- 5) Shift of fishermen from the fishing industry to better paying jobs in other industries. This leads to a gradual reduction of the labor force, and particularly, in full-time fishermen.
- 6) Dredging and land reclamation activities which, along the Bahrain coasts, affects the inshore ecosystem including many corals. The total area dredged in 1982 was about 13,500,000 m², while that reclaimed was 9,000,000 m² (Al-Alawi, 1982).
- 7) Lack of modern fishing techniques; this activity is still dependent on artisanal sectors which used traditional fish capture methods.
- 8) Shortage of qualified manpower in various aspects of fishery science. Saleh (1986) explained that the lack of qualified persons in the fishing industry may be due to socioeconomic factors, as fishing became less attractive to the new generation, and hence fewer people were involved in this sector.
- 9) Regional and government restrictions. The FAO (1978) reported that grounds fished by Bahrainis are also

fished by fleets from neighboring countries, so domestic catches are influenced by the activities of the other fleets. Also, fishing is prohibited in some areas owing to local industrial and defense institutions (Saleh, 1986).

10) Pollution of the sea either by spilled oil, industrial waste, or untreated sewage.

11) Increase in prices of fishing gear and other related equipment.

Conclusions

Although Bahrain has increased fish production, the rise in population and the high demand for fish (especially fresh fish) has made it difficult to rely on local fish. As a result, fish imports have increased annually. Additionally, there are many barriers to developing the marine fisheries in the country. To develop Bahraini fishery resources, the following measures should be considered:

- 1) Providing basic facilities for landing, handling, processing, and marketing of fish in Bahrain.
- 2) Introducing modern techniques, and improving traditional fishing methods.
- 3) Stimulating local fishermen to be more involved in fisheries by improving access to credit and gear technology.
- 4) Establishing local regulations and legislation for fisheries in Bahrain. This could be done through assistance from other related international organizations.
- 5) Controlling dredging and reclamation activities through regulations, and carrying out geological and bioecological surveys in areas where dredging or reclamation is planned (Al-Alawi, 1982).
- 6) Training in different aspects of fishery science.
- 7) Encouraging fisheries research and studies, and providing adequate facilities (especially laboratory equipment) to carry them out.
- 8) Financially subsidizing fishing gear and other fishing equipment to encourage fishermen to enroll in fisheries.

It is important to note that some of

these recommendations were considered in the 5-year plan for the development of the fishing sector in Bahrain; however, serious efforts should be put to applying these recommendations.

Recently, the Government of Bahrain, the United Nations Development Programme (UNDP), and the Food and Agriculture Organization of the United Nations have signed an agreement to establish a regional fish marketing service for the Arab World, "INFOSAMAK". The main objectives of this project are to provide information and technical assistance to the fishery industry, to assist in opening up new markets for fish and fish products, to assist exporters of fish products, to generate new investment information in the Arab fishing industry, and to establish a basis for cooperation among the Arab countries in fisheries matters. This project may also help in developing fishery resources in Bahrain and other Arab countries.

Literature Cited

- Al-Alawi, S. 1982. Dredging and land reclamation activities along Bahrain coast. Dir. Fish., Minist. Commer. Agric., Bahrain.
- Anonymous. 1985a. Fisheries census, 1983. Fish. Stat. Serv., Dir. Fish., Minist. Commer. Agric., Bahrain.
- . 1985b. Annual statistics report, 1984. Fish. Stat. Serv., Dir. Fish., Minist. Commer. Agric., Bahrain.
- . 1986. Statistical abstract, 1985. Central Stat. Organ., Counc. Minist., Bahrain.
- Central Statistics Organization. 1985. Household expenditure and income survey. Central Stat. Organ., Counc. Minist., Bahrain.
- Cole, R. C., C. A. Philbrooks, and L., Nicoladies. 1977. Report on fish handling, preservation, and processing in Bahrain. Trop. Prod. Inst. Rep., Lond.
- El-Sherbini, A. 1980. Environmental adversity and food policy in the Arab Gulf States. Food Policy, p. 97-104.
- FAO. 1978. Fisheries biologist-shrimp, Bahrain. Terminal Rep. FT:DP/BAH/74/017. Food Agric. Organ. U. N., Rome.
- Kamel, B. S., and A. Allam. 1979. Composition of food consumed in Kuwait (Phase I). Kuwait Inst. Sci. Res. Rep.
- Musaiger, A. O. 1982. Factors affecting food consumption in Bahrain, Ecol. Food Nutr. 12:39-48.
- . In press. The state of food and nutrition in the Arabian Gulf countries. World Rev. Nutr. Diet.
- Saleh, N. 1986. Development of fish resources in the Arabian Gulf and Red Sea. Pap. pres. at First Conf. Dev. Food Indust., Kuwait Inst. Sci. Res.